REMARKS

The Examiner's action dated May 22, 2003, has been received, and its contents carefully noted.

In response to the objection to the specification, a new abstract containing fewer than 150 words is submitted herewith.

In response to the rejection under 35 U.S.C. 103, claim 1 has been amended to more clearly define the contribution of the invention over the prior art. It will be noted that, by this amendment, the previously recited "detecting" steps have been deleted because it has been found that these steps are not needed to either define a complete method or to distinguish over the prior art. It will be noted, in this connection, that the detecting steps were not referred to at other points in claim 1.

The rejection of the claims as unpatentable over Takeshita is traversed for the reason that the novel method and device defined in these claims is not suggested by the applied reference. In fact, as will become more readily apparent from the discussion to be presented below, Takeshita actually teaches away from the present invention.

A basic feature of the present invention is that the diversion of communication traffic from first optical transmission and reception links to second links is based on a

determination performed at each location where switching must occur. In clear contrast, and as will be explained in greater detail below, Takeshita teaches making the necessary determination at one location and then sending a fault signal to other locations.

In the explanation of the rejection, the Examiner appears to acknowledge that Takeshita does not disclose that the fault is detected at either a first or second location, but maintains it would have been obvious to one of ordinary skill in the art, since Takeshita measures trouble or quality deterioration of optical signs anywhere in the wavelength path; therefore the Examiner concludes that Takeshita provides a disclosure that is "equivalent" to the present invention.

However, one very important fact that has apparently overlooked is that in the present invention the detection is **not** made at **either** the first or second location, but rather it must be made at **both** the first and second locations in order to fully switch to the second, or protection, path. One must understand that, as disclosed by Takeshita, a switch to the protection path is made at one of the path ends only after receiving a proper notification (alarm, request etc.) from the other end. In this case, such a switch is **not** independent of the end forwarding the notification, but on the contrary, it is very much dependent to receive the notification therefrom,

and no switch is made before completing the full process of receiving the notification (and acknowledging the receipt whenever required).

In support of the rejection, reliance has been placed on the disclosure at col. 12, lines 40-45 of Takeshita, and the Examiner maintains that Takeshita discloses that an optical cross connect is able to detect the occurrence of wavelength path trouble and that in this case, the optical cross connect is appropriately considered a "first location" or "second location" that is capable of itself detecting a fault without the need of an alarm from another unit". This is true, and the Applicants have never claimed to have invented a network element that is capable of detecting a fault by itself, without having to rely on another network element.

However, the problem solved by the present invention is: What should be done after such a fault was detected by one element? Now, Takeshita is very clear about that next step, and has explicitly explained the following: "And, in case a trouble or quality deterioration is detected in the wavelengths paths, it is possible to notify other network elements of the occurrence of a trouble in the corresponding wavelength paths by issuing AIS to the network elements of other optical layers". (col. 12, lines 31-35)

As already explained in our response to the previous Office Action and as discussed above, the solution provided by the present invention eliminates the need for such notification, *e.g.* for transmitting an alarm, and hence eliminates the problems associated with sending such notifications. For example, failure to receive the notification proposed by Takeshita may result in one of the link ends continuing to transmit along the faulty path while the other end has already switched to the protection path; having to wait for the notification (and usually acknowledging its receipt thereafter) causes inherent delays in the completion of the switching process, and consequently loss of traffic during that period, etc.

Furthermore, it is very clear not only that the solution provided by the present invention could not have been considered obvious to one skilled in the art, but even Takeshita et al. themselves, the inventors in the cited patent, did not foresee that solution. Takeshita clearly states that one should issue "an optical signal trouble detection signal (AIS (Alarm Indication Signal)) for shutting down the optical power in case that optical signal inputs are lost, and notifying the trouble" (Abstract, lines 3-6); and "The issue of the AIS can be realized at high speed by

shutting down the optical power of the corresponding wavelength paths". (col. 12, lines 35-37).

It is therefore respectfully submitted that, in fact, Takeshita teaches away from the present invention. Even in the embodiment where Takeshita proposes to shut down the optical power at one end of the optical link, they considered that shut down to be nothing more than a rapid alarm which should be handled accordingly, with all the known disadvantages of the prior art associated with delivering alarms and/or requests to switch to protection paths. Also, Takeshita does not provide any indication that even in such a case where a network element detects a fault and shuts down the optical power in that element, it should also switch to a protection path, knowing that the other side of the link will switch to that very same protection path without exchanging any information between these two ends on how to effect that switch.

Thus claim 1 clearly distinguishes in an unobvious manner over this reference at least by the following recitations:

> determining whether a total of the energy received over a first optical link at the second location exceeds a pre-defined threshold;
>
> in the case that the total energy thus received does not exceed the pre-defined threshold, diverting the traffic transmission and reception at

the second location to the corresponding second links;

determining whether a total of the energy received via a first optical link at the first location exceeds a pre-defined threshold; and

in the case that the total energy thus received at the first location does not exceed the pre-defined threshold, diverting the traffic transmission and reception at the first location to the corresponding second links.

Similarly, claim 2 clearly distinguishes in an unobvious manner over this reference at least by the following recitations:

detecting a fault on at least one of the channels carrying traffic in normal operation mode, at the second location;

switching at the second location the transmission and reception paths associated with said at least one failing channel to the at least one protection channel;

detecting a fault on said at least one channel at the first location; and

switching at the first location the transmission and reception paths associated with said at least one faulty channel to the at least one protection channel.

Thus, in each of these claims, a detection or a determination is made at each location to control diversion,

or switching, at **that** location. This is simply beyond any suggestion that can be inferred from the Takeshita disclosure.

Concerning claim 6, the Examiner maintains that "while Takeshita does not disclose that non-failing channels undergo continuous operation it would have been obvious to one of ordinary skill in the art". Please note that the feature of "non-failing channels undergo continuous operation" was previously eliminated from claim 6. On the other hand, here again the main issue as recited in the amended claim is the diversion of traffic at each of the first and second locations, independent of detecting a loss of signal at the other of said first and second locations.

Thus, claim 6 distinguishes over the applied reference at least by the following recitation:

> wherein in response to a detection of loss of signal in said at least one forward channel, traffic designated to be transmitted along said at least one forward channel is diverted to said at least one protection link at each of the first and second locations, **independent of detecting a loss of signal at the other of said first and second locations.**

Accordingly, it is requested that the prior rejection be reconsidered and withdrawn, that all of the pending claims be allowed and that the application be found in allowable condition.

In the present case, if the above amendment does not place the application in condition for allowance, it is desired to seek a personal interview with the Examiner to discuss this matter. In that event, it is asked that the Examiner contact undersigned counsel to arrange such interview.

Respectfully submitted,

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